

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION**

MOBILITY WORKX, LLC,

Plaintiff,

v.

**VERIZON COMMUNICATIONS, INC.
and
CELLCO PARTNERSHIP D/B/A
VERIZON WIRELESS,**

Defendants.

Civil Action No.: _____

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Mobility Workx, LLC (“Mobility Workx” or “Plaintiff”), by and through its attorneys, files this Complaint for Patent Infringement against Defendants VERIZON COMMUNICATIONS, INC. and CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS (collectively, “Defendants”). Plaintiff alleges the following:

PARTIES

1. Plaintiff Mobility Workx is a limited liability company organized and existing under the laws of the State of Florida, with a place of business at 215 Circle Drive, Winters, TX 79567. Plaintiff is the owner of seminal patents in various fields, including wireless communication systems and wireless network emulators. Plaintiff’s portfolio includes, for example, patents that teach valuable innovations and improvements related to predictive systems for supporting wireless communication. Plaintiff is actively engaged in licensing efforts with respect to such technologies.

2. Verizon Communications Inc. is a Delaware corporation with its principal place of business in New York, New York. This Defendant does business in the State of Texas and in the Eastern District of Texas. This Defendant may be served with process through its registered agent, The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801.

3. Defendant Cellco Partnership Inc. d/b/a Verizon Wireless is a Delaware general partnership with its principal place of business in Basking Ridge, New Jersey. This Defendant may be served with process through its registered agent, The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801.

4. Collectively Verizon Communications Inc. and Cellco Partnership Inc. d/b/a Verizon Wireless, may be referred to herein as “Verizon” or “Defendants.”

5. According to Verizon’s website, it has had the “#1 overall network in the U.S. 8 times in a row,” is “ranked Highest in Wireless Network Quality Performance across the U.S.,” and rated “#1 in network performance satisfaction, 9 years running.” (<https://www.verizonwireless.com/>).

6. Defendants offer postpaid and prepaid wireless voice, messaging, and data service to customers in all U.S. states and territories. (<https://www.verizonwireless.com/prepaid/>). Defendants also offer data only plans. (<https://www.verizonwireless.com/plans/data-only-plan/>).

7. In connection with its provision of wireless products and services, Defendants offer Long-Term Evolution (“LTE”) network services directly to customers (through retail stores and their websites) and to dealers and third-party distributors for resale through independent, third-party retail outlets and third-party websites.

JURISDICTION AND VENUE

8. This action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*, including but not limited to §§ 271, 281, 282(a), 283, 284, and 285. This Court has subject matter jurisdiction over this patent infringement action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

9. This Court has personal jurisdiction over Defendants. Defendants have regularly conducted and continue to conduct business in the State of Texas and in the Eastern District of Texas (“District”). On information and belief, Defendants have committed infringing activities in the United States, in Texas, and in this District by, at a minimum, using, offering for sale, and/or selling products and/or services that infringe the Patents-In-Suit (as defined below), and/or by placing such infringing products into the stream of commerce with the awareness, knowledge, and intent that they would be used, offered for sale, and/or sold by others in this judicial district and/or purchased by consumers in this judicial district.

10. Venue is proper in this District pursuant to 28 U.S.C. § 1400(b). Upon information and belief, Defendants (1) have committed infringing acts in this judicial district by, at a minimum, using, offering for sale, and/or selling products and/or services that infringe the Patents-In-Suit, and (2) maintain a “regular and established” place of business in this district by, at a minimum, maintaining corporate stores in this district, where the accused products are used, offered for sale, sold, and by maintaining other places of business where research and development and sales are conducted and/or where customer service is provided and/or repairs are made.

11. Defendants have a physical presence in the District, including, but not limited to, ownership of or control over property, inventory, infrastructure, or people. For example, Verizon’s website displays information for the “McKinney” Verizon store, located at 2035 N Central Expy, STE 620, McKinney, TX, 75070, and for the “Frisco” Verizon store, located at 2330 Preston Rd,

Suite 500, Frisco, TX, 75034. Verizon's website allows users to search for stores, delineating stores between "Verizon Wireless" stores and "Authorized Retailers." (<https://www.verizonwireless.com/stores/texas/frisco/>).

12. Defendants derive benefits from their presence in this District, including, but not limited to, sales revenue. For example, Verizon receives revenue from its corporate stores in this District, by selling network access, phones/products, and services and by receiving payment for its network access, phones/products, and services.

THE PATENTS-IN-SUIT

13. On April 13, 2010, U.S. Patent No. 7,697,508 ("508 Patent") – entitled "System, Apparatus, and Methods for Proactive Allocation of Wireless Communication Resources" – was lawfully and properly issued by the United States Patent and Trademark Office ("USPTO"), after a full and fair examination. The named inventors on the '508 Patent are Edwin A. Hernandez-Mondragon of Coral Springs, Florida, and Abdelsalam A. Helal of Gainesville, Florida. A true and correct copy of the '508 Patent is attached hereto as Exhibit A and incorporated by reference.

14. Generally speaking, the '508 Patent teaches, among other things, a system for allocation of resources in a communications network for supporting wireless communications. This novel system provides various advantages and benefits. For example, it leads to reduced delays and information losses in wireless communication networks by reducing registration overhead and setup times associated with mobile node handoffs. These advantageous results, among others, are achieved by allocating communication network resources proactively rather than reactively.

15. On July 3, 2012, U.S. Patent No. 8,213,417 ("417 Patent") – entitled "System, Apparatus, and Methods for Proactive Allocation of Wireless Communication Resources" – was

lawfully and properly issued by the USPTO, after a full and fair examination. The named inventors on the ‘417 Patent are Edwin A. Hernandez-Mondragon of Coral Springs, Florida, and Abdelsalam A. Helal of Gainesville, Florida. A true and correct copy of the ‘417 Patent is attached hereto as Exhibit B and incorporated by reference.

16. As a continuation of the ‘508 Patent, the ‘417 Patent also teaches, among other things, a system for allocation of resources in a communications network for supporting wireless communications. This novel system provides various advantages and benefits. For example, it leads to reduced delays and information losses in wireless communication networks by reducing registration overhead and setup times associated with mobile node handoffs. These advantageous results, among others, are achieved by allocating communication network resources proactively rather than reactively.

17. On June 12, 2007, U.S. Patent No. 7,231,330 (“‘330 Patent”) – entitled “Rapid Mobility Network Emulator Method and System” – was lawfully and properly issued by the USPTO, after a full and fair examination. The named inventors on the ‘330 Patent are Edwin A. Hernandez-Mondragon of Coral Springs, Florida, and Abdelsalam A. Helal of Gainesville, Florida. A true and correct copy of the ‘330 Patent is attached hereto as Exhibit C and incorporated by reference.

18. Generally speaking, the ‘330 Patent teaches, among other things, a system and method for emulating mobile network communications. These novel systems and methods provide various advantages and benefits. For example, the system and methods provide for the modeling and testing of various mobile network configurations and scenarios. These advantageous results, among others, are achieved by dynamically adjusting the signal reception sensitivity and signal transmission strength of each wireless node and by emulating at least one wireless network node

attribute to simulate network conditions experienced by the mobile node in communicating with network-connected nodes.

19. The ‘508, ‘417, and ‘330 Patents may be referred to individually as a “Patent-in-Suit” or collectively as the “Patents-in-Suit.”

20. The named inventors of the Patents-in-Suit – Dr. Hernandez and Dr. Helal – are Plaintiff’s managing partners. By way of assignment, Plaintiff is the owner of all substantial right, title, and interest in and to the Patents-in-Suit.

THE ACCUSED PRODUCT

21. Defendants’ infringing acts, as described in this Complaint, relate to their use, sale, and offers for sale of their LTE network and related services. The specifications for the LTE standard are described on various publicly available websites, such as: http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.09.00_60/ts_136300v080900p.pdf. For example, Verizon’s LTE network incorporates network components detailed in the LTE standard, including Evolved - Universal Terrestrial Radio Access Network NodeB (“eNB”), Mobility Management Entity (“MME”), Serving Gateway (“S-GW”), and User Equipment (“UE”) components.

22. Examples of UE include the Samsung Galaxy S8, which is compatible with the Verizon LTE cellular network, and directed, controlled, made, used, sold, offered for sale, imported, or otherwise distributed by or through Defendants and/or Defendants’ suppliers, retailers, and resellers, for use on Verizon’s LTE network (“Verizon UE”). (<https://www.verizonwireless.com/smartphones/samsung-galaxy-s8/>).

23. Examples of eNBs include the Nokia 9926 eNodeB, which, upon information and belief, is compatible with the Verizon LTE cellular network and is made, used, sold, offered for

sale, or imported, by or through Defendants and/or Defendants' suppliers, retailers, and resellers, for use on Verizon's LTE network ("Verizon eNBs").

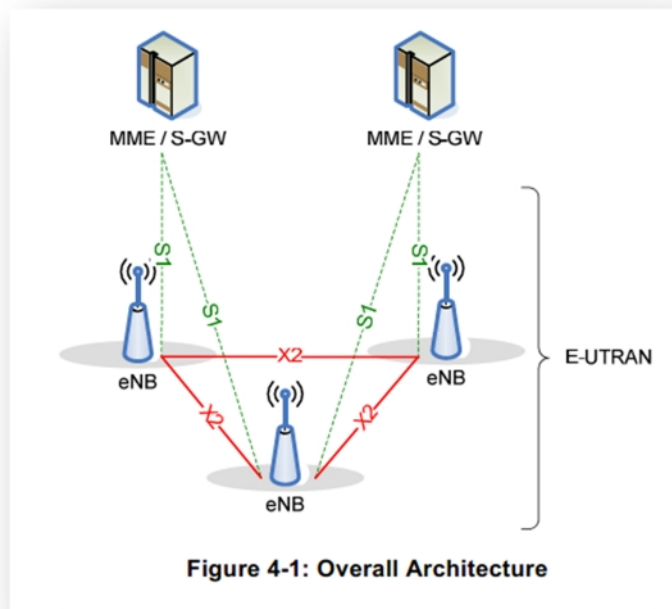
24. Examples of MMEs include the Nokia 9471 Wireless Mobility Manager, which, upon information and belief, is compatible with the Verizon LTE cellular network and is made, used, sold, offered for sale, or imported by or through Defendants and/or Defendants' suppliers, retailers, and resellers, for use on Verizon's LTE network ("Verizon MMEs").

25. Examples of S-GWs include the Nokia 7750 Service Router, which, upon information and belief, is compatible with the Verizon LTE cellular network and is made, used, sold, offered for sale, or imported by or through Defendants and/or Defendants' suppliers, retailers, and resellers, for use on Verizon's LTE network ("Verizon S-GWs"). "Verizon already uses the Alcatel 7750 SR edge router." (<https://www.peworld.com/article/256013/verizon-looks-to-alcatels-new-core-router-for-capacity-efficiency.html>).

26. The Verizon LTE Network, Verizon UE, Verizon eNBs, Verizon MMEs, and Verizon S-GWs, are collectively referred to as the Accused Product.

27. Upon information and belief, the Accused Product is compliant with the 3rd Generation Partnership Project ("3GPP") Technical Standards for LTE network (Release 8), including TS 23.401, 24.301, 29.274, 36.300, 36.331, 36.401, 36.413, 36.423.

28. The Verizon UE, Verizon eNBs, Verizon MMEs, and Verizon S-GWs comprise critical components of Verizon's LTE network, as shown in the Overall Architecture figure from the LTE standard below:



https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.09.00_60/ts_136300v080900p.pdf (“3GPP TS 36.300”), p. 15.

29. In contrast to the circuit-switched model of previous cellular systems, LTE was designed to support only packet-switched services. It aims to provide seamless Internet Protocol (IP) connectivity between UE and the packet data network (“PDN”), without any disruption to the end users’ applications during mobility. *See, e.g.,* https://www.cse.unt.edu/~rdantu/FALL_2013_WIRELESS_NETWORK/LTE_Alcatel_White_Paper.pdf, p. 1.

30. Verizon UEs undergo the Open Development Device Certification process – device testing and conformance requirements that devices must meet before they are certified for use on the Verizon Wireless Network. Original Equipment Manufacturers (“OEM”) or Open Development (“OD”) Device Developers requesting Verizon Wireless’ certification for LTE capable Devices must receive GCF certification before OD Conformance testing can commence.

(<https://odi-device.verizonwireless.com/Info/Open%20Development%20Device%20Docs/Certification%20Process%20Documentation/ODDeviceCertificationProcess.pdf>, pp. 6, 9).

31. Upon information and belief, Verizon provides Verizon UE device testing & certification services (“Accused Testing Service”) at its Device Testing and Certification Lab (“Lab”), which uses a system for emulating mobile network communications. (*See, e.g.,* <http://www.dailyrecord.com/story/money/industries/technology/2016/02/17/watch-behind--scenes-look-how-verizon-tests-smartphones/80444780/>).

COUNT ONE: INFRINGEMENT OF THE ‘508 PATENT

32. Plaintiff incorporates the above allegations as if set forth here in full.

33. The ‘508 Patent is valid and enforceable. Defendants do not have a license to practice the claimed inventions of the ‘508 Patent.

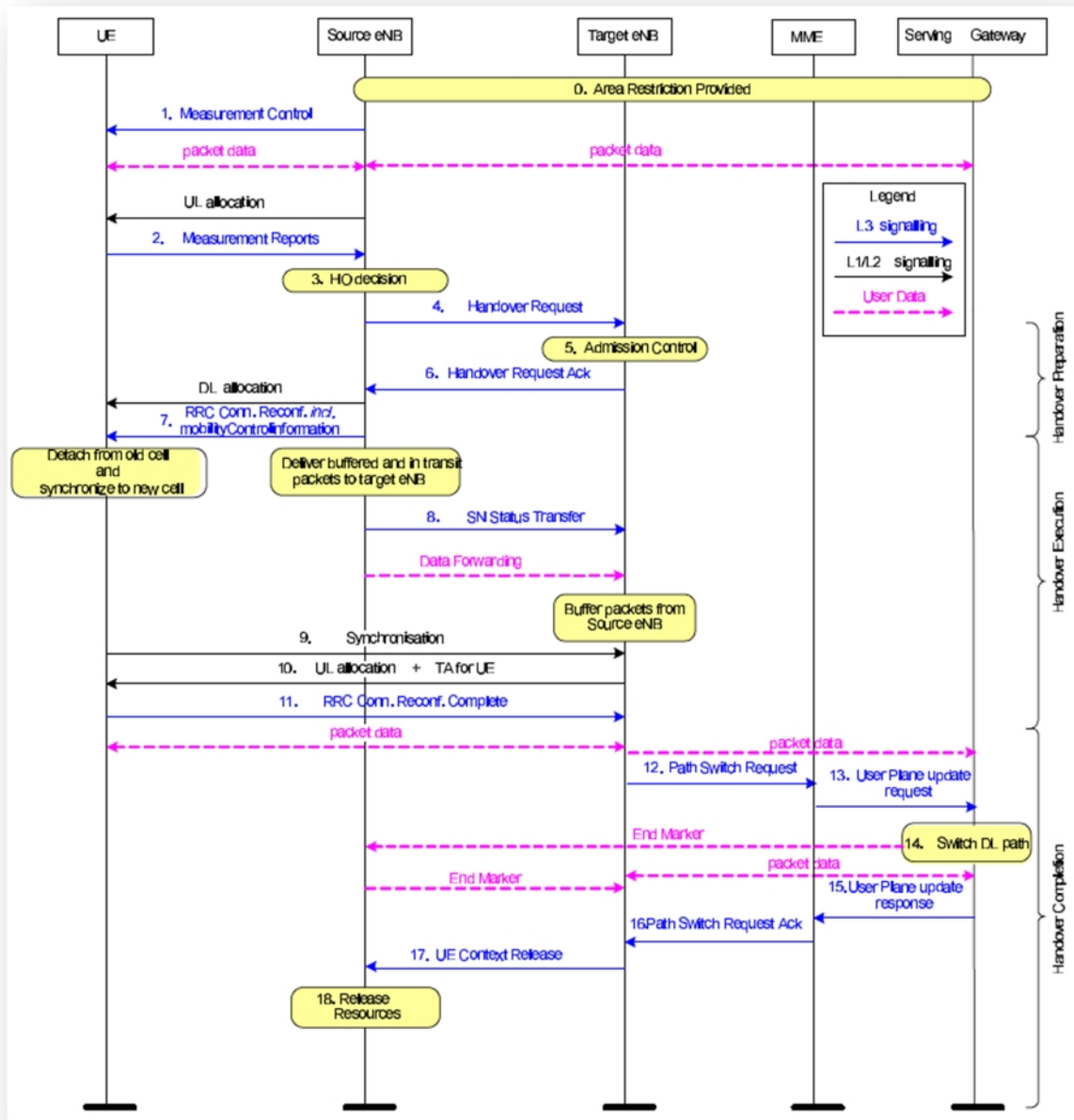
34. Defendants directly infringe one or more claims of the ‘508 Patent in this District and elsewhere in Texas and the United States.

35. Without the consent or authorization of Mobility Workx, Defendants make, have made, offer for sale, sell, import, and/or use the Accused Product, in violation of 35 U.S.C. § 271(a).

36. Defendants directly infringe at least Claim 1 of the ‘508 Patent. For example, on information and belief, Defendants offer for sale, sell, and/or use an Accused Product that meets each and every limitation in Claim 1 of the ‘508 Patent, which recites: “A system for handling mobile devices in a wireless communications network, the system comprising: a mobile node communicatively linked to the wireless communications network, wherein the mobile node has a corresponding geographical current state and one or more predicted geographical future states; at

least one foreign agent identified for each of the geographical future states; at least one ghost mobile node associated with the mobile node, wherein said ghost mobile node can announce to said foreign agent the presence of said ghost mobile node; a ghost-foreign agent associated with said foreign agent, wherein said ghost foreign agent can announce to said mobile node or said ghost mobile node associated with the mobile node, the presence of said ghost foreign agent; means for registering said ghost mobile node or mobile node with the associated ghost foreign agent or foreign agent, while the mobile node remains in the geographical current state; and means for linking the mobile node with a foreign agent associated with said ghost foreign agent when the mobile node enters a respective geographical future state associated with said foreign agent.”

37. Upon information and belief, the Accused Product provides for LTE network handovers using the X2 and/or S1 interfaces. For example:



3GPP TS 36.300, p. 46 (Figure 10.1.2.1.1-1: Intra-MME/Serving Gateway HO).

38. Defendants directly infringe at least Claim 1 of the '508 Patent by making, using, offering to sell, selling, and/or importing the Accused Product.

39. Defendants' Accused Product meets every limitation of Claim 1 of the '508 Patent and therefore directly infringes Claim 1 of the '508 Patent.

40. Under the Defendants' direction or control, the Accused Product includes reports from a mobile node (UE) that contain events, such as a neighbor signal becoming better than a threshold or a certain amount better than the signal of the node's current cell that indicate to the network that a mobile node will be moving into a new cell ("predicted geographical future state"), and can trigger a handover to the new cell:

5.5.4.5 Event A4 (Neighbour becomes better than threshold)

The UE shall:

1> consider the entering condition for this event to be satisfied when condition A4-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A4-2, as specified below, is fulfilled;

Inequality A4-1 (Entering condition)

$$Mn + Ofn + Ocn - Hys > Thresh$$

Inequality A4-2 (Leaving condition)

$$Mn + Ofn + Ocn + Hys < Thresh$$

The variables in the formula are defined as follows:

Mn is the measurement result of the neighbouring cell, not taking into account any offsets.

Ofn is the frequency specific offset of the frequency of the neighbour cell (i.e. *offsetFreq* as defined within *measObjectEUTRA* corresponding to the frequency of the neighbour cell).

Ocn is the cell specific offset of the neighbour cell (i.e. *cellIndividualOffset* as defined within *measObjectEUTRA* corresponding to the frequency of the neighbour cell), and set to zero if not configured for the neighbour cell.

Hys is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigEUTRA* for this event).

Thresh is the threshold parameter for this event (i.e. *a4-Threshold* as defined within *reportConfigEUTRA* for this event).

Mn is expressed in dBm in case of RSRP, or in dB in case of RSRQ.

Ofn, ***Ocn***, ***Hys*** are expressed in dB.

Thresh is expressed in the same unit as ***Ms***.

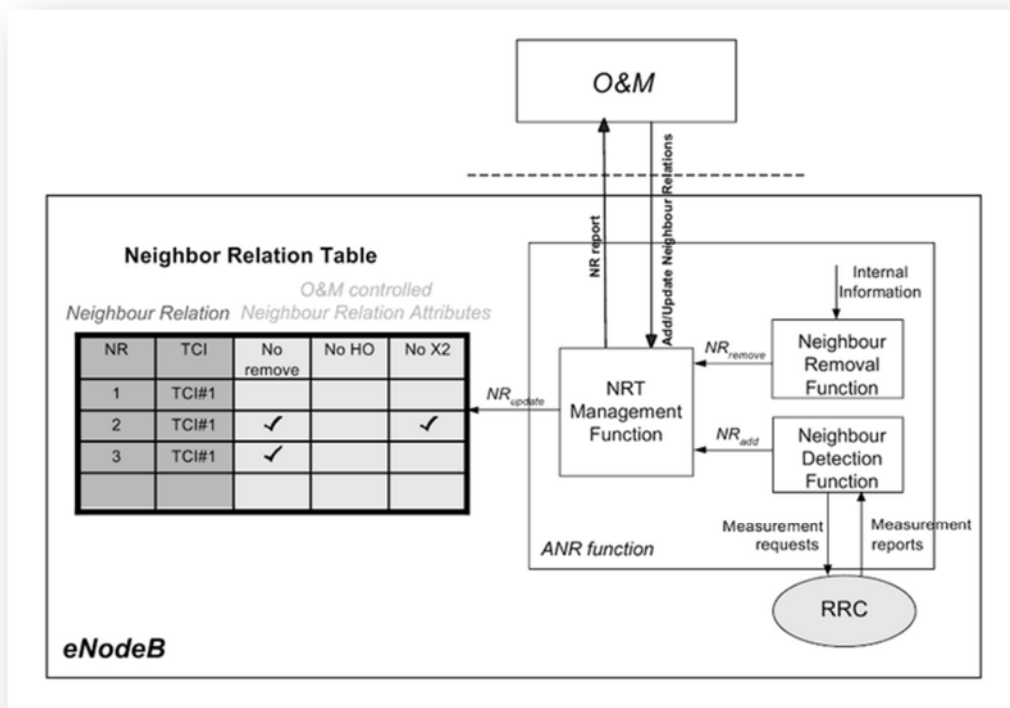
https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/10.07.00_60/ts_136331v100700p.pdf ("3GPP TS 36.331"), p. 85-86.

41. The Accused Product includes a Source eNB that acts as a proxy for the UE and manages connection mobility control on its behalf. The Source eNB announces its presence to a Target eNB by sending a Handover Request message. For example:

The source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side (UE X2 signalling context reference at source eNB, UE S1 EPC signalling context reference, target cell ID, K_{eNB}*, RRC context including the C-RNTI of the UE in the source eNB, AS-configuration, E-RAB context and physical layer ID of the source cell + MAC for possible RLF recovery). UE X2 / UE S1 signalling references enable the target eNB to address the source eNB and the EPC. The E-RAB context includes necessary RNL and TNL addressing information, and QoS profiles of the E-RABs.

3GPP TS 36.300, p. 46.

42. The Accused Product includes an Automatic Neighbour Relation Function that can announce information regarding neighboring cells. For example:



3GPP TS 36.300, p. 129.

43. These factual assertions, some of which are made on information and belief, are made to satisfy the pleading standard of Fed. R. Civ. P. 8(a), as applied and interpreted by *Twombly*, *Iqbal*, and their progeny. In accordance with Fed. R. Civ. P. 11, Plaintiff states, without waiving any applicable privileges or protections, that such assertions are based upon Plaintiff's pre-suit investigation and due diligence, in reliance on publicly available information, documents, and products and analysis derived therefrom. Plaintiff will provide infringement contentions in accordance with this Court's local rules and will supplement those contentions when Defendants provide the technical documentation required by the Court's local patent rules and as may be requested or subpoenaed in discovery requests made pursuant to the Federal Rules of Civil Procedure.

44. Plaintiff expressly reserves the right to assert additional patents and additional claims, to identify additional infringing products, and to join additional entities who operate in concert with Defendants, in accordance with the Federal Rules of Civil Procedure, the Court's scheduling order, and the Court's local rules.

45. Plaintiff has been damaged by Defendants' infringing conduct and will continue to be damaged unless Defendants are enjoined from further infringement. Accordingly, upon finding for Plaintiff, the Court should award to Plaintiff damages adequate to compensate for the infringement, in an amount to be determined at trial, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the Court. Further, upon judgment in favor of Plaintiff, the Court should permanently enjoin Defendants from committing the infringing acts.

COUNT TWO: INFRINGEMENT OF THE '417 PATENT

46. Plaintiff incorporates the above allegations as if set forth here in full.

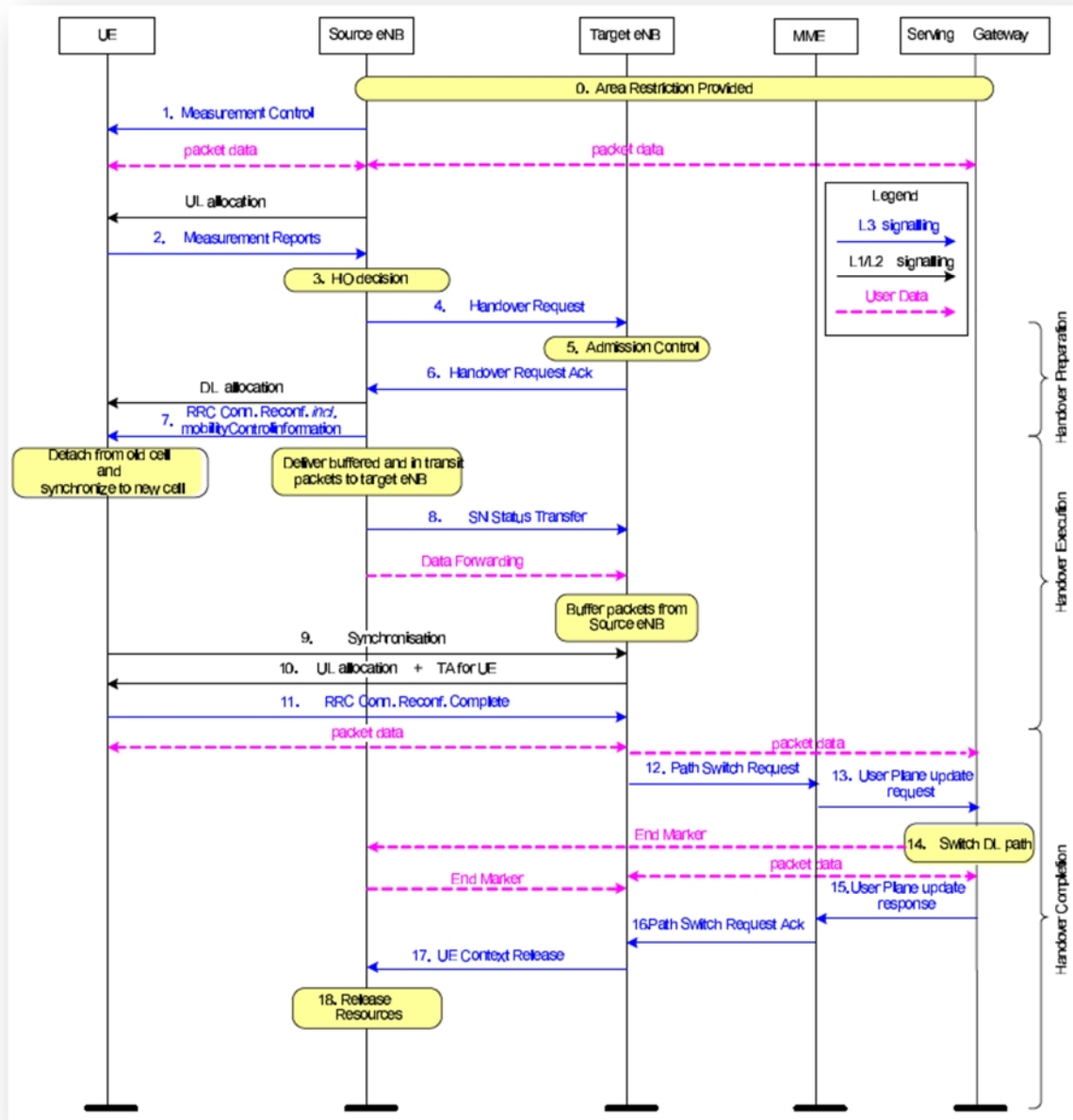
47. The '417 Patent is valid and enforceable. Defendants do not have a license to practice the claimed inventions of the '417 Patent.

48. Defendants directly infringe one or more claims of the '417 Patent in this District and elsewhere in Texas and the United States.

49. Without the consent or authorization of Mobility Workx, Defendants make, have made, offer for sale, sell, import, and/or use the Accused Product, in violation of 35 U.S.C. § 271(a).

50. Defendants directly infringe at least Claim 1 of the '417 Patent. For example, on information and belief, Defendants make, offer for sale, sell, and/or use an Accused Product that meets each and every limitation in Claim 1 of the '417 Patent, which recites: "A system for communicating between a mobile node and a communication network; the network having at least one communications network node that is interconnected using a proxy mobile internet protocol (IP), comprising: at least one mobile node; at least one home agent; at least one foreign agent; a ghost-foreign agent that advertises messages to one of the mobile nodes indicating presence of the ghost-foreign agent on behalf of one of the foreign agents when the mobile node is located in a geographical area where the foreign agent is not physically present; and a ghost mobile node that creates replica IP messages on behalf of a mobile node, the ghost mobile node handling signaling required to allocate resources and initiate mobility on behalf of the mobile node, the ghost mobile node triggering signals based on a predicted physical location of such mobile node or distance with relation to the at least one foreign agent."

51. Upon information and belief, the Accused Product provides for LTE network handovers using the X2 and/or S1 interfaces. For example:



3GPP TS 36.300, p. 46.

52. Defendants directly infringe at least Claim 1 of the '417 Patent by making, using, offering to sell, selling, and/or importing the Accused Product.

53. Defendants' Accused Product meets every limitation of Claim 1 of the '417 Patent and therefore directly infringes Claim 1 of the '417 Patent.

54. The Accused Product includes a Source eNB that acts as a proxy for the UE and manages connection mobility control on its behalf. The Source eNB announces its presence to a Target eNB by sending a Handover Request message. For example:

The source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side (UE X2 signalling context reference at source eNB, UE S1 EPC signalling context reference, target cell ID, K_{eNB^*} , RRC context including the C-RNTI of the UE in the source eNB, AS-configuration, E-RAB context and physical layer ID of the source cell + MAC for possible RLF recovery). UE X2 / UE S1 signalling references enable the target eNB to address the source eNB and the EPC. The E-RAB context includes necessary RNL and TNL addressing information, and QoS profiles of the E-RABs.

3GPP TS 36.300, p. 46.

55. The Accused Product can advertise messages regarding neighboring cells. For example:

— **SystemInformationBlockType4**

The IE *SystemInformationBlockType4* contains neighbouring cell related information relevant only for intra-frequency cell re-selection. The IE includes cells with specific re-selection parameters as well as blacklisted cells.

SystemInformationBlockType4 field descriptions

csg-PhysCellIdRange
Set of physical cell identities reserved for CSG cells on the frequency on which this field was received. The received <i>csg-PhysCellIdRange</i> applies if less than 24 hours has elapsed since it was received and the UE is camped on a cell of the same primary PLMN where this field was received. The 3 hour validity restriction (section 5.2.1.3) does not apply to this field. The UE shall not apply any stored <i>csg-PhysCellIdRange</i> when it is in <i>any cell selection</i> state defined in TS 36.304 [4].
intraFreqBlackCellList
List of blacklisted intra-frequency neighbouring cells.
intraFreqNeighbCellList
List of intra-frequency neighbouring cells with specific cell re-selection parameters.
q-OffsetCell
Parameter "Qoffset _{s,n} " in TS 36.304 [4].

— **SystemInformationBlockType5**

The IE *SystemInformationBlockType5* contains information relevant only for inter-frequency cell re-selection i.e. information about other E-UTRA frequencies and inter-frequency neighbouring cells relevant for cell re-selection. The IE includes cell re-selection parameters common for a frequency as well as cell specific re-selection parameters.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/10.07.00_60/ts_136331v100700p.pdf (“3GPP TS 36.331”), p. 154.

56. The Accused Product includes the creation of replica IP messages on behalf of a mobile node. For example, the UE information sent by the UE to an eNB upon initial attachment to the network is replicated and sent during a handover:

6.4 UE associations in eNB

There are several types of UE associations needed in the eNB: the "eNB UE Context" used to store all information needed for a UE in active state and the associations between the UE and the logical S1 and X2 connections used for S1/X2-AP UE associated messages.

Definitions:

eNB UE context:

An eNB UE context is a block of information in an eNB associated to one active UE. The block of information contains the necessary information required to maintain the E-UTRAN services towards the active UE. At least UE state information, security information, UE capability information and the identities of the UE-associated logical S1-connection shall be included in the eNB UE context. An eNB UE context is established when the transition to active state for a UE is completed or in target eNB after completion of handover resource allocation during handover preparation.

https://www.etsi.org/deliver/etsi_ts/136400_136499/136401/08.06.00_60/ts_136401v080600p.pdf (“3GPP TS 36.401”), p. 12.

57. The Accused Product includes reports from the mobile node (UE) that contain events, such as a neighbor signal becoming better than a threshold, or a certain amount better than the signal of the node's current cell, which indicate to the network that a mobile node will be moving into a new cell (predicted physical location) and can trigger a handover to the new cell.

5.5.4.5 Event A4 (Neighbour becomes better than threshold)

The UE shall:

1> consider the entering condition for this event to be satisfied when condition A4-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A4-2, as specified below, is fulfilled;

Inequality A4-1 (Entering condition)

$$Mn + Ofn + Ocn - Hys > Thresh$$

Inequality A4-2 (Leaving condition)

$$Mn + Ofn + Ocn + Hys < Thresh$$

The variables in the formula are defined as follows:

Mn is the measurement result of the neighbouring cell, not taking into account any offsets.

Ofn is the frequency specific offset of the frequency of the neighbour cell (i.e. *offsetFreq* as defined within *measObjectEUTRA* corresponding to the frequency of the neighbour cell).

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Hys is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigEUTRA* for this event).

Thresh is the threshold parameter for this event (i.e. *a4-Threshold* as defined within *reportConfigEUTRA* for this event).

Mn is expressed in dBm in case of RSRP, or in dB in case of RSRQ.

Ofn, ***Ocn***, ***Hys*** are expressed in dB.

Thresh is expressed in the same unit as ***Ms***.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/10.07.00_60/ts_136331v100700p.pdf (“3GPP TS 36.331”), p. 85-86.

58. These factual assertions, some of which are made on information and belief, are made to satisfy the pleading standard of Fed. R. Civ. P. 8(a), as applied and interpreted by *Twombly*, *Iqbal*, and their progeny. In accordance with Fed. R. Civ. P. 11, Plaintiff states, without waiving any applicable privileges or protections, that such assertions are based upon Plaintiff's pre-suit investigation and due diligence, in reliance on publicly available information, documents, and products and analysis derived therefrom. Plaintiff will provide infringement contentions in accordance with this Court's local rules and will supplement those contentions when Defendants provide the technical documentation required by the Court's local patent rules and as may be

requested or subpoenaed in discovery requests made pursuant to the Federal Rules of Civil Procedure.

59. Plaintiff expressly reserves the right to assert additional patents and additional claims, to identify additional infringing products, and to join additional entities who may infringe or who operate in concert with Defendants, in accordance with the Federal Rules of Civil Procedure, the Court's scheduling order, and the Court's local rules.

60. Plaintiff has been damaged by Defendants' infringing conduct and will continue to be damaged unless Defendants are enjoined from further infringement. Accordingly, upon finding for Plaintiff, the Court should award to Plaintiff damages adequate to compensate for the infringement, in an amount to be determined at trial, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the Court. Further, upon judgment in favor of Plaintiff, the Court should permanently enjoin Defendants from committing the infringing acts.

COUNT THREE: INFRINGEMENT OF THE '330 PATENT

61. Plaintiff incorporates the above allegations as if set forth here in full.

62. The '330 Patent is valid and enforceable. Defendants do not have a license to practice the claimed inventions of the '330 Patent.

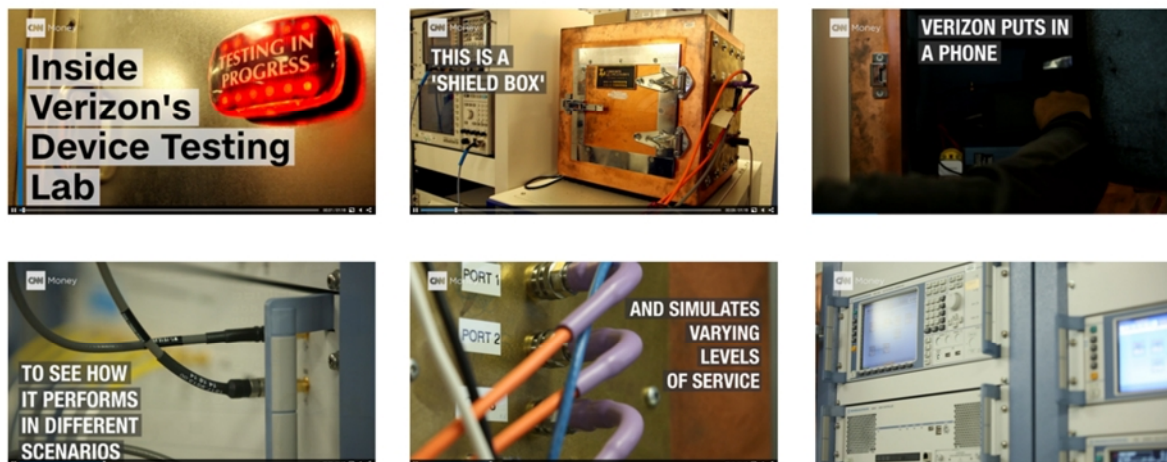
63. Defendants directly infringe one or more claims of the '330 Patent in the United States.

64. Without the consent or authorization of Mobility Workx, Defendants make, have made, offer for sale, sell, import, and/or use the Accused Testing Service, in violation of 35 U.S.C. § 271(a).

65. Defendants directly infringe at least Claim 1 of the '330 Patent. For example, on information and belief, Defendants make, offer for sale, sell, and/or use an Accused Testing Service that meets each and every limitation in Claim 1 of the '330 Patent, which recites: "A system for emulating mobile network communications comprising: a plurality of fixedly-located wireless network nodes configured to variably adjust wireless communication characteristics; at least one mobile node configured to wirelessly communicate with selected ones of said plurality of wireless network nodes; a network emulator communicatively linked to each of said plurality of wireless network nodes, said network emulator configured to emulate attributes of a packet-based wired communications network for simulating network conditions experienced by said at least one mobile node in communicating with other nodes through the wired communications network, the emulated attributes comprising at least one of tunable packet-delay distribution, network congestion, bandwidth limitation, and packet re-ordering and duplication; and a controller communicatively linked to each of said plurality of wireless network nodes, said controller configured to control the wireless communication characteristics of each of said plurality of wireless network nodes to simulate, without changing operating parameters of said at least one mobile node, different wireless communication conditions experienced by said at least one mobile node in actual operation."

66. Upon information and belief, the Accused Testing Service occurs at Defendants' Device Testing and Certification Lab. For example:

Verizon's Device Testing and Certification Lab



<http://money.cnn.com/video/technology/2016/02/22/verizon-device-testing.cnnmoney/>

67. Upon information and belief, the Accused Testing Service uses a system for emulating mobile network communications by modeling and testing various mobile network configurations, scenarios, and/or test plans. Upon information and belief, Verizon provides a Test Entrance Criteria Checklists for devices it provides testing for. Additionally, Verizon provides tests related to LTE Data transmission and reception. For example:

v3.6		Open Access - Test Entrance Criteria Checklist	
THIS SECTION TO BE COMPLETED BY DEVICE SUPPLIER			
Administrative Information		Test Selection Information	
Preparation Date:		LTE Test Type	LTE SFN
TECC VZW Point of Contact: <small>(For VZW NDET User Only)</small>		LTE Test Lab	VZW NDET Lab
Manufacturer / VZWID:		LTE Device Capability	LTE Band 13 + CDMA
Model / ProductID:		Operating System	Android
3GPP Release:		Receive Diversity	Rx Diversity
SW Version:		Short Message Service	SMS
HW Version:		Enhanced Message Service	EMS
Requirements Release Date		Multimedia Message Service	MMS
GCF-CC Version:		Voice / Data	Voice + Data
GCF Certificate and Test Results are required for all Bands supported by LTE Devices/Modules.		Form Factor	Handset
		LTE Field Test	Yes
		RRC UE Feature Group Support (provide a comma separated list of supported features e.g. 2, 4, 5, etc) -- see 3GPP TS 36.331 section 8.1 for feature group definition	
		Temperature and Voltage testing?	Yes
		Required Temperature Testing:	-10°C, +25°C and +55°C
		LRA Participant	No
		LTE Certified Chipset (CCP)?	Select

LTE Data Retry Test Plan					
Test Case	Selection				
Note: Execute All Error Codes For Each TC as per Test Plan (except note listed for TC6.7)	Lab Conformance	LTE SFN	Regression Test Cases	Required TCs for device using Certified Chipset	
E-UTRAN RRC_CONNECTED State Mobility					
5.1.1 E-UTRAN FDD-FDD Handover intra frequency case				X	
5.1.2 E-UTRAN TDD-TDD Handover intra frequency case					
5.1.3 E-UTRAN FDD-FDD Handover inter frequency case					
5.1.4 E-UTRAN TDD-TDD Handover inter frequency case					
5.1.5 E-UTRAN TDD-TDD inter frequency handover: unknown target cell					
5.1.6 E-UTRAN TDD-TDD Handover inter frequency case					
5.2.1 E-UTRAN FDD – UTRAN FDD handover					
5.2.2 E-UTRAN TDD – UTRAN FDD handover					
5.2.3 E-UTRAN FDD – GSM handover					
5.2.4 E-UTRAN TDD – UTRAN TDD handover					
5.2.5 E-UTRAN FDD – UTRAN TDD handover					
5.2.6 E-UTRAN TDD – GSM handover					
5.2.7 E-UTRAN FDD – UTRAN FDD handover: unknown target cell					
5.2.8 E-UTRAN FDD – GSM handover: unknown target cell					
5.2.9 E-UTRAN TDD – GSM handover unknown target cell					
5.2.9 E-UTRAN TDD – UTRAN TDD handover: unknown target cell					
5.3.1 E-UTRAN FDD Intra-frequency RRC Re-establishment					
5.3.2 E-UTRAN FDD Intra-frequency RRC Re-establishment					
5.3.2 E-UTRAN TDD Intra-frequency RRC Re-establishment					
5.3.2 E-UTRAN TDD Inter-frequency RRC Re-establishment					

https://odi-device.verizonwireless.com/info/OpenDevelopmentDeviceDocs/OpenAccessDocs/LTE_3GPP_Band13_Test_Entrance_Criteria.xlsx

68. Upon information and belief, Verizon's Accused Testing Service uses a system with a network emulator, Spirent SR3452 CDMA Network Emulator in Controller mode. For example:



Figure 2-2: SR3452 V2 CDMA Network Emulator

The front panel of the SR3452 V2 includes a set of LED indicators that display the status of the instrument.

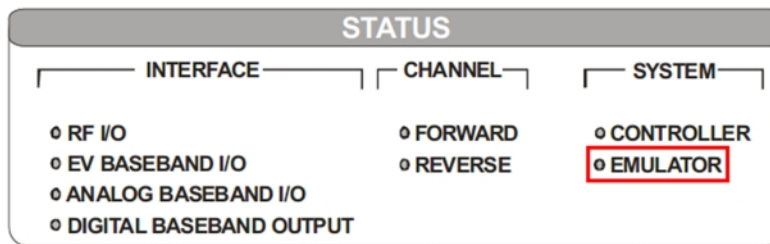


Figure 2-3: SR3452 V2 LED Indicators

<https://support->

[kb.spirent.com/resources/sites/SPIRENT/content/live/DOCUMENTATION/10000/DOC10404/en_US/UM_AirAccessC2K_v4_40_A12.pdf](https://support-kb.spirent.com/resources/sites/SPIRENT/content/live/DOCUMENTATION/10000/DOC10404/en_US/UM_AirAccessC2K_v4_40_A12.pdf) (“AirAccess C2K User Manual”), p. 8.

69. Upon information and belief, Verizon's Accused Testing Service uses a system with a controller, such as Spirent SR3452 CDMA Network Emulator in Controller mode with Spirent AirAccess C2K Application Software. For example:



Figure 2-2: SR3452 V2 CDMA Network Emulator

The front panel of the SR3452 V2 includes a set of LED indicators that display the status of the instrument.

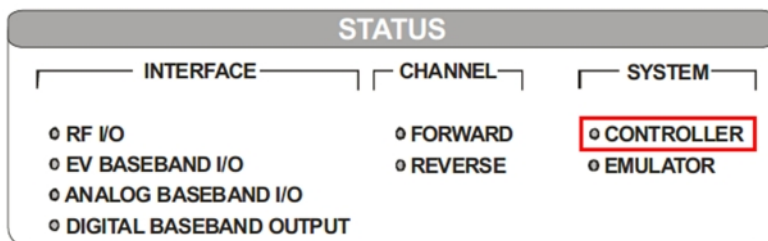


Figure 2-3: SR3452 V2 LED Indicators

AirAccess C2K User Manual, p. 8.

2.2.1. AirAccess C2K Application Software

This section is applicable to AirAccess C2K and AirAccess 1xPLUS.

The AirAccess C2K software is a Windows-based application that provides the ability to configure and control a wide range of emulated wireless network infrastructure components within an easy-to-use GUI. AirAccess complements this flexibility with a real-time Message Analyzer, Test Results Log, and File Cabinet for fast retrieval of stored configuration files and test logs. The *AirAccess C2K* window is shown in Figure 2-1.

4.3.5. Core Network (CN)

The **CN** icon provides access to a wide range of applications and functions emulating the network behind the base stations. Access the *CN Configuration* window by clicking the **CN** icon, or selecting **Network>Configure Core Network** from the main application menu. The window, shown in Figure 4-22, contains a series of windows for configuring core network elements.

AirAccess C2K User Manual, pp. 6, 44.

70. These factual assertions, some of which are made on information and belief, are made to satisfy the pleading standard of Fed. R. Civ. P. 8(a), as applied and interpreted by *Twombly*, *Iqbal*, and their progeny. In accordance with Fed. R. Civ. P. 11, Plaintiff states, without waiving any applicable privileges or protections, that such assertions are based upon Plaintiff's pre-suit investigation and due diligence, in reliance on publicly available information, documents, and products and analysis derived therefrom. Plaintiff will provide infringement contentions in accordance with this Court's local rules and will supplement those contentions when Defendants provide the technical documentation required by the Court's local patent rules and as may be requested or subpoenaed in discovery requests made pursuant to the Federal Rules of Civil Procedure.

71. Plaintiff expressly reserves the right to assert additional patents and additional claims, to identify additional infringing products, and to join additional entities who may infringe or who operate in concert with Defendants, in accordance with the Federal Rules of Civil Procedure, the Court's scheduling order, and the Court's local rules.

72. Plaintiff has been damaged by Defendants' infringing conduct and will continue to be damaged unless Defendants are enjoined from further infringement. Accordingly, upon finding for Plaintiff, the Court should award to Plaintiff damages adequate to compensate for the infringement, in an amount to be determined at trial, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the Court. Further, upon judgment in favor of Plaintiff, the Court should permanently enjoin Defendants from committing the infringing acts.

DEMAND FOR JURY TRIAL

73. Plaintiff hereby demands a trial by jury on all issues triable to a jury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully prays for entry of judgment as follows:

- a) That Defendants have infringed one or more claims of the Patents-in-Suit.
- b) That Defendants be ordered to provide an accounting;
- c) That Plaintiff is entitled to, and should recover, all damages to which Plaintiff is entitled under 35 U.S.C. § 284, but in no event less than a reasonable royalty;
- d) That Defendants be permanently enjoined from further infringement of the Patents-in-Suit;
- e) That Plaintiff, as the prevailing party, shall recover from Defendants all taxable costs of court;
- f) That Plaintiff shall recover from Defendants all pre- and post-judgment interest on the damages award, calculated at the highest interest rates allowed by law;
- g) That this case is exceptional and that Plaintiff shall therefore recover its attorney's fees and other recoverable expenses, under 35 U.S.C. § 285; and
- h) That Plaintiff shall recover from Defendants such other and further relief as the Court may deem appropriate.

Dated: December 15, 2017

Respectfully submitted,

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